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ABSTRACT

To aid undergraduate students in their initial study of Piaget's theory of intellectual development, students enrolled in a sophomore child development course administered selected tasks to individual subjects in order to verify or disprove results predicted in the theory. Prior to replicating the Piagetian experiments, students were introduced to the theory through lectures, films, and a summary of Piaget's theoretical concepts and developmental stages. They then were provided an opportunity to execute the tasks in mock experiments in class or to watch an actual experiment. Each undergraduate was given a guide to administering the tasks and was responsible for identifying at least one child between the ages of 4 and 7 years for experiment participation. For many undergraduates, an understanding of the theory was achieved only after this application phase of instruction. Guide sheets used to facilitate student replication of tasks are provided. These guides focus on an inference task; a complex verbal problem; and conservation of area, volume, and number tasks. (RH)

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USING PIAGETIAN TASKS TO ASSESS DEVELOPMENTAL LEVELS IN ELEMENTARY SCHOOL STUDENTS

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USING PIAGETIAN TASKS TO ASSESS DEVELOPMENTAL LEVELS IN ELEMENTARY SCHOOL STUDENTS

In an attempt to promote the replication of studies in child development, Eson and Wilkinson (1975)* detailed the procedures followed in some eighteen research studies. Among these, two were replications of Piagetian studies executed by David Elkind for statistical substantiation of Piaget's conclusions.

Replication of such experiments has also proven beneficial to undergraduate students in their initial study of Piaget's theory of intellectual development. Each semester for the past five years students enrolled in a sophomore child development course have administered selected tasks to individual subjects in an effort to varify or disprove results predicted from the theory. This approach has succeeded where lectures have not.

The students were introduced to Piaget through lectures and three 16mm films. In addition to text materials they were provided a condensed summary of Piaget's theoretical concepts and developmental stages. With this background they were then provided an opportunity to execute the tasks in mock experiments in class or to watch an actual experiment through an observation mirror.

Having been cautioned about ethical considerations for the protection of human subjects, each student was armed with a guide to facilitate the administration of the tasks and was

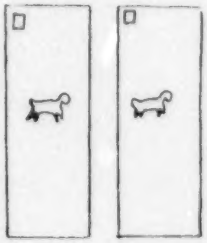
responsible for identifying at least one child (ages 4-7) for the experiment. For many, an understanding of the theory was achieved only after this application phase.

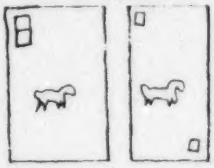
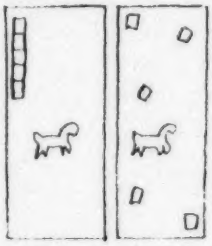
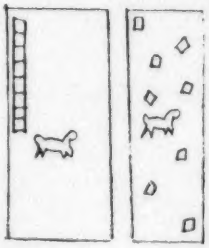
Following is a sample of the type of guide sheet used to facilitate student replication of the tasks. Such simple guide sheets could be developed for distinguishing gross, intensive, and extensive quantities and to deal with all tasks in conservation, classification, or seriation from preoperational through formal operational levels. The prospective teachers having completed this series of experiments thus would have a complete frame of reference for relating the theory to individual student performance. Replication in this sense would be placing emphasis on process rather than product.

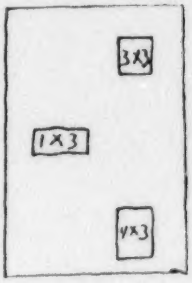
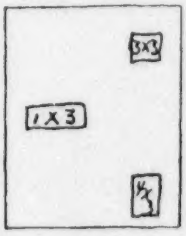
*Eson, Morris E. and H. Jean Wilkinson (ed.), Studies for Replication in Child Development. New York: Holt, Rinehart and Winston, Inc., 1975.

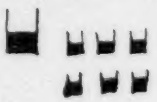
RESPONSE SHEET FOR PIAGET TASKS

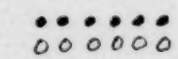
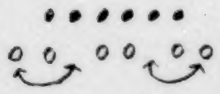
Student's Name_____ School_____

Item	Directions	Verbal Instructions	Response
I. Conservation of Area-- 2 Pasture Fields a) establishing equivalence	Place 2 pieces of green construction paper of the same size before the student, saying:	Let's pretend that these are two fields of grass or pasture fields. Do they look the same?	
	Pick up the sheets and superimpose one on the other, saying:	Let's see. Yes, they are the same size.	
	Then replace them to their positions on the table, saying:	Let's pretend this is your farm (point to one) and this is my farm (point to the other. Ok?	
b) equivalence with 1 cow and 1 barn in each field	Place one cow in the center of each field, asking:	If we put a cow in each field, does each cow have just as much grass to eat as the other cow?	yes_____ no _____
	Place a barn on one field saying:	Now this is your farm and you are going to build a barn on it. But this will take up some space for grass.	
	Then ask:	Now, show me which cow has more grass to eat.	Left more___ Right more__ Same_____
	Put a barn on the other field asking:	Now does this one have more (point) or does this one have more (point) or do they both have the same?	Left more___ Right More__ Same_____

Item	Directions	Verbal Instructions	Response
c) 2 barns vs. 2 barns 	Place a second barn in each field. On the left field, put the second barn beside the first one. On the right one, put the barn in the opposite corner, asking:	Now does this cow (pointing) have just as much grass to eat as that one (point), or does one have more grass to eat?	Left more__ Rignt more_ Same _____
d) 5 barns vs. 5 barns 	Place three more barns on each field, first 3 on the left beside the first two saying: Then three on the right scattered about, saying: Then ask: Then ask:	You are an industrious farmer and you are going to build barns on your farm. But I am a copy cat and I also am going to build barns. Now which cow has more grass to eat? Does this one have more (pointing)? Or does this one have more (pointing)? Or do they both have the same? Why?	Left more__ Rignt more_ Same_____
e) 8 barns vs. 8 barns 	Place three more barns on each field, first 3 on the left beside the first five, saying: Then three more on the rignt scattered about, saying: Then ask: Then ask:	You build more barns like so. And I build more barns, like so. Now, which cow has more grass to eat? Does this one have more (pointing)? Or does this one have more (pointing)? Or do they both have the same? Why?	Left more__ Right more_ Same_____
f) 11 barns vs. 11 barns	Same as above	Same as above	Left more__ Right more_ Same

Item	Directions	Verbal Instructions	Response
II. Conservation of Area--Islands 	Place a piece of blue construction paper on a table before the child explaining: Place a block of wood 3x4x3 on the 3x4 box saying: Offering several 1" cubes of wood to the child, say: Then ask:	This represents the ocean and each of these boxes (point) represents an island And this is a hotel. These represent rooms in the hotel. Can you tell me how many rooms are in the hotel? How many stories does the hotel have How many rooms per story?	_____ _____ _____
b) second island 	Remove the wooden block, saying:	A tropical storm tears down this hotel and we need to build a hotel of equal size on this island (point to 3x3 box). How many rooms will be needed? How many stories?	_____ _____
c) third island	Point to the third island and ask:	Can you build a hotel on this island equal to the first? How many stories will it have? How many rooms?	_____ _____

Item	Directions	Verbal Instructions	Response
III. Conservation of Volume--2 equal glasses	Place two glasses of equal size before the student with equal amounts of colored water, one of one color, one of another saying: Then ask: Add a few drops to one or the other as needed to establish equivalence.	Here are two glasses of water. Let's pretend this is your Kool Aid (point to one) and this is mine (point to the other). Do they look the same?	
b) first glass vs. taller, thinner one	Take one glass and pour its contents into a taller, thinner glass and say: Then ask: Then ask: Return liquid to first glass.	Let's put your Kool Aid into this glass Now, who has more to drink? Do you have more? Or do I have more? Or do we both have the same? Why?	Child has more____ Experimenter has more____ Same____
c) first glass vs. several smaller, shorter glasses 	Pour the contents of one glass into several smaller, shorter glasses and say: Then ask: Then ask: Return the liquid to the first glass.	Now lets pour Kool Aid into these glasses. Now, who has more to drink? Do you have more? Or do I have more? Or do we both have the same? Why?	Child has more____ Experimenter has more____ Same____

Item	Directions	Verbal Instructions	Response
IV. Hypothetical Problem-- "If Coal Were White..."	As the question to the right and record in general terms how the child reacts. Do not force any answer, just record how he reacts.	"What would happen if coal were white?"	
V. Conservation of Number a) establish equivalent rows of coins 	Place a row of 6 coins on the table before the child. Point to a pile of coins to the side and ask: Note: does he make a row of the same number in one-to-one correspondence	Using these, can you make me a row of the same size, equal to the first?	
b) transform length vs. constant number 	Move the 2nd coin from the left in one row to the left a distance = the distance between the others in the row and the second from the right to the right a distance = to the distance between the others in the row. Then ask:	Now which row has more? Does this one have more (pointing to one)? Or does this one have more (pointing to the other)? Or do they both have the same? Why?	Shorter has more___ Longer has more___ Both the Same_____
VI. Complex Verbal Problem	Slowly read the statement to the right and repeat as necessary to assure the child's understanding of the problem. Record response. Do not force an answer.	"Edith is fairer than Susan; Edith is darker than Lilly; Who is darkest of the three?"	Edith_____ Susan_____ Lilly_____